

Mr. Michael T. Davis
Algebra II Delta & Eta

Exponential Functions Unit III (2nd half)
Quiz 2 Practice
April 8, 2015

Total
48 ~~pts~~ pts

Name: Mr. Davis Solutions

Determine the percentages in #'s 1-7 WITHOUT a calculator:

2 ~~pts~~ pt

1. Find 15% of 120.

$$10\% \text{ of } 120 = 12$$

$$15\% \text{ of } 120 = 12 + 6 = 18$$

2 ~~pts~~ pt

2. Find 25% of 96.

$$\frac{1}{4} \text{ of } 96 = 24$$

2 ~~pts~~ pt

3. Find 65% of 80.

$$\begin{array}{r} 80 \\ \times .65 \\ \hline 400 \\ 4800 \\ \hline 52.00 \end{array} \quad 52$$

2 ~~pts~~ pt

4. Find 200% of 34.

$$2 \text{ times } 34 = 68$$

2 ~~pts~~ pt

5. Find 1% of 52.

$$\frac{1}{100} (52) = \frac{52}{100} = 0.52$$

2 ~~pts~~ pt

6. Find 2.8% of 50.

$$50\% \text{ of } 2.8 = 1.4$$

2 ~~pts~~ pt

7. Find 0.1% of 90.

$$\frac{.1}{100} (90) = \frac{1}{1000} (90) = \frac{90}{1000} = \frac{9}{100} = 0.09$$

Determine the answers to these questions WITH a calculator:

4 pt

8. The rabbit population on Bunny Island is 16,000 today. If the population over the next year increases by 80%, then what will be the size of the population in one year?

$$\begin{aligned} 16,000 + 80\% (16,000) \\ 16,000 + 12,800 \\ 28,800 \end{aligned}$$

4 pt

9. Tickets to Kanye West's concert were \$78 last week. This week, the tickets are on sale at a 35% discount price. What is the discounted price this week?

$$\begin{aligned} \text{Reducing by } 35\% \text{ implies charging } 65\% \\ 65\% \text{ of } 78 = 0.65(78) = \$50.7 \end{aligned}$$

4 pt

10. The last time you checked your savings account balance, you had \$1,350. You notice today that the balance is \$1,755. What is the % increase in the balance since you last checked?

$$\frac{\text{change}}{\text{original}} = \frac{405}{1350} = 0.30 = 30\% \text{ increase}$$

4 pt

11. Your fish tank contained 30 gallons when it was completely full. Since you filled the tank, water has evaporated so that there are now only 16.5 gallons of water. By what % did the water volume decrease?

$$\frac{\text{change}}{\text{original}} = \frac{13.5}{30} = 0.45 = 45\% \text{ decrease}$$

4 pt

12. Compound interest scenario. Suppose you invest \$2,300 in a compound interest bearing savings account with an annual interest rate of 4.5% for 13 years. What will the future value of the investment be in 13 years?

$$\begin{aligned} f(x) &= 2300(1 + 4.5\%)^x & f(x) &= 2300(1.045)^x \\ f(x) &= 2300(1.045)^x & f(13) &= 2300(1.045)^{13} \approx \$4076.05 \end{aligned}$$

8pt

13. Circle all the functions that represent exponential growth:

a. $f(x) = 2\left(\frac{1}{3}\right)^x$

b. $f(x) = 11\left(\frac{1}{4}\right)^{-x}$

$f(x) = 11(4)^x$

c. $f(x) = \frac{5}{3}\left(\frac{2}{3}\right)^x$

d. $f(x) = 23(1.2)^x$

b. $f(x) = 10(3)^{-x}$

b. $f(x) = 0.7\left(\frac{6}{7}\right)^{-x}$

$f(x) = 0.7\left(\frac{7}{6}\right)^x$

c. $f(x) = 100\left(\frac{9}{10}\right)^x$

d. $f(x) = 3.4\left(\frac{11}{10}\right)^x$

6pt

14. Given the exponential function $f(x) = \frac{1}{2}(3)^x$, fill in the x-y table, plot the points carefully

and draw the graph

x	y
-2	$\frac{1}{18}$
-1	$\frac{1}{6}$
0	$\frac{1}{2}$
1	$\frac{3}{2} = 1.5$
2	$\frac{9}{2} = 4.5$
3	$\frac{27}{2} = 13.5$



